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SOUTHEASTERN COOPERATIVE WILDLIFE DISEASE STUDY

COLLEGE OF VETERINARY MEDICINE
THE UNIVERSITY OF GEORGIA
ATHENS, GEORGIA 30602-7387

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November 21, 1995

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Mr. Tom Prusa, Manager
St. Catherine's Creek National Wildlife Refuges
Post Office Box 18639
Natchez, Mississippi 39122

Dear Tom:

Enclosed is our report on the deer herd health check that we conducted on St. Catherine's Creek National Wildlife Refuge (Sibley Farms Area), Adams County, Mississippi, on September 12, 1995. The data are summarized in three tables (parasitologic, serologic, and pathologic) and are accompanied by interpretative comments. Our findings are briefly summarized below.

This population has substantial indication of a deterioration of herd health and probably is experiencing some mortality due to a syndrome of malnutrition/parasitism. Such losses usually involve younger and aged individuals and often are of a cryptic nature with only severe problems recognizable as die-offs. This conclusion is based on the very high APC value (APC = 3,988), a combination of physical condition and other physiologic parameters, a high prevalence of lungworm disease, and an array of lesions and pathologic conditions detected during our health check. All of the animals had stomach worm infections of over 2,400, and three were anemic. The herd also has had some hemorrhagic disease virus activity, although future activity by these agents within the herd or their impact is not predictable. Evidence of other viral and bacterial diseases also was found. Based on these findings, a reduction in herd density would be appropriate to alleviate the density dependent problems of parasitism and nutritional stress; herd reduction can be expected to have less impact on hemorrhagic disease which is less strongly tied to deer density. Continuation of current density can be expected to result in further declines in herd health and increased disease-related mortality.

I trust this information will be of value in management of this deer population. If you have any questions about the report, please do not hesitate to contact me.

Best regards,

Sincerely,

RECEIVED

Randy Davidson

William R. Davidson, Ph.D.
Assistant Professor

WRD
Enclosures

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ST. CATHERINE CREEK
NATIONAL WILDLIFE REFUGE

CC: Ms. Noreen Clough
Mr. Geoffrey Haskett
Mr. Cleophas R. Cooke, Jr.
Dr. E. Frank Bowers
Mr. S. Ray Aycock
Dr. Milton Friend
Dr. Sam Polles
Mr. Robert Griffin
Mr. William Thomason

Table 1. Arthropod, helminth, and protozoan parasites of five white-tailed deer (Odoco
National Wildlife Refuge (Sibley Farms Area), Adams County, Mississippi, on September 1

Animal Number	1	2	3	4	5	Animal
Age (years)	1	1	1	3	1	Lice
Sex	F	F	F	F	F	Louse F
Weight (pounds)	108	80	86	130	105	Ticks
Physical Condition	Fair	Fair	Fair	Fair	Fair	Chigger
Kidney Fat Index	39.8	14.0	21.4	27.1	30.7	Ear Mi
Packed Cell Volume	38	22	40	33	40	Nasal E
Hemoglobin	16.0	9.0	15.3	14.5	16.4	

Location in Host		Number of Parasit		
	HELMINTHS	1	2	3
Subcutaneous				
Brain				
Circulatory				
Lungs	Dictyocaulus viviparus	3	1	3
	Protostrongylid larvae	-	-	-
Abdominal Cavity	Setaria yehi	-	-	4
Liver	Fascioloides magna	-	-	3
Esophagus				
Rumen				
Abomasum	Mazamastrongylus pursglovei	1,774	2,073	1,936
(APC =3,988)	Ostertagia dikmansi	222	207	-
	Ostertagia mossi	444	1,865	553
	Trichostrongylus askivali	-	415	691
	PROTZOANS			
Blood	Theileria cervi	+	+	+
	Trypanosoma cervi	+	+	+

Table 2. Results of serologic tests for selected diseases in five white-tailed deer from St. Catherine's Creek National Wildife Refuge (Sibley Farms Area), Adams County, Mississippi, on September 12, 1995.

Disease	Deer Number 1	2	3	4	5
Leptospirosis					
(serotype bratislava)	Neg	Neg	Neg	Sus	Sus
(serotype pomona)	Neg	Neg	Neg	Pos	Neg
(serotype hardjo)	Pos	Neg	Neg	Pos	Neg
(serotype grippotyphosa)	Neg	Neg	Neg	Neg	Pos
(serotype icterohemorrhagiae)	Neg	Neg	Neg	Neg	Neg
(serotype canicola)	Neg	Neg	Neg	Neg	Neg
Brucellosis	Neg	Neg	Neg	Neg	Neg
Infectious bovine rhinotracheitis (IBR)	Neg	Neg	Neg	Neg	Neg
Bovine virus diarrhea (BVD)	Neg	Neg	Neg	Neg	Neg
Parainfluenza$_3$ (PI_3)	Neg	Neg	Neg	Neg	Neg
Epizootic hemorrhagic disease (EHD)	Pos	Neg	Neg	Pos	Neg
Bluetongue (BT)	Wk+	Neg	Neg	Pos	Neg
Lyme Disease	Neg	Neg	Neg	Neg	Neg

Table 3. Lesions and pathologic conditions in five white-tailed deer collected from St. Catherine's Creek National Wildlife Refuge (Sibley Farms Area), Adams County, Mississippi, on September 12, 1995.

	Deer Number				
Lesion/Condition	1	2	3	4	5
Bronchitis/peribronchitis	1	2	1	-	-
Fibrinous pleuritis	-	2	1	1	1
Pneumonitis	-	-	-	-	1
Focal verminous pneumonia	1	1	-	-	-
Fibrinous peritonitis	-	-	1	1	1
Lymphadenitis/lymphandenopathy	1	-	-	-	-
Focal hepatic fibrosis	-	-	2	1	-
Infectious cutaneous fibromas	-	1	1	-	-
Anemia	1	1	-	1	-

Key: - = lesion or condition not present; 1 = minor tissue damage or mild pathologic change; 2 = moderate tissue damage or moderate pathologic change; 3 = extensive tissue damage or marked pathologic change.

INTERPRETIVE COMMENTS: White-tailed deer collected from St. Catherine's Creek National Wildlife Refuge (Sibley Farms Area), Adams County, Mississippi, on September 12, 1995.

Large lungworms (Dictyocaulus viviparus) present in low numbers in all deer. Protostrongylid larvae, probably from muscleworms (Parelaphostrongylus andersoni), were present in the lungs of two animals. Large lungworms and protostrongylid larvae were associated with mild to moderate lung damage (bronchitis/peribronchitis, pleuritis, pneumonitis, pneumonia) in all deer. Liver flukes (Fascioloides magna) present in low numbers in two deer and associated with mild to moderate liver damage (hepatic fibrosis). Abomasal parasites (Mazamastrongylus pursglovei, Ostertagia dikmansi, O. mossi, Trichostrongylus askivali) at a very high level (APC = 3,988) indicating that the herd has an extremely high probability of being in excess of nutritional carrying capacity. Abdominal worms (Setaria yehi) present in low numbers in one deer but not considered important to herd health. Blood protozoans (Theileria cervi and/or Trypanosoma cervi) present in all deer with the former considered a significant stressor among heavily parasitized deer. Arthropod parasites at levels typical of many southeastern white-tailed deer populations.

Physical condition ratings, kidney fat indices, hematologic values, and body weights generally were indicative of nutritional stress within the herd, and three animals were anemic. In addition to lesions attributable to parasitism (noted above), pathologic studies disclosed nonspecific lesions including inflammation of the lymph nodes (lymphadenitis/lymphadenopathy), inflammation of the abdominal cavity (peritonitis), and viral-induced skin tumors (fibromas). Serologic tests for antibodies to selected infectious diseases disclosed antibodies to hemorrhagic disease viruses (bluetongue and/or EHD virus) and to multiple serovars of Leptospira interrogans. Hemorrhagic disease is the most important viral disease of deer, and one or both of the causative viruses have been active on the area. Antibodies indicate a potential for infection in future years and give an indication of current herd immunity; however, when or to what extent clinical disease will occur in the future cannot be predicted. Antibodies to leptospires are seen occasionally among deer, but these agents have not been associated with disease in deer; cross-reactions are common among serovars and that is likely the reason for detection of multiple serovars in this herd.

An overview is as follows: (1) based on APC data it is a virtual certainty that the herd is in excess of nutritional carrying capacity; (2) important pathogenic parasites, for example, large lungworms, liver flukes, ticks, and blood protozoans, were present in nearly all animals and were associated with at least subclinical disease; (3) physical condition and other physiologic indices (for example, anemia) strongly suggest a deterioration in herd health; (4) at least two viral diseases and one bacterial disease have been active on the area; (5) the herd currently has only limited immunity to hemorrhagic disease, the most important viral disease of deer; and (6) current overall herd health suggests that at least some disease-related mortality is occurring. The main problem appears to be a syndrome of nutritional stress and parasitism which typically is most severe among the youngest and most aged segments of the population. Based on these findings, a herd reduction should be considered to help prevent further declines in herd health; continuation of current herd density can be expected to result in a marked decline in herd health and increased losses to a parasitism/malnutrition syndrome.

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United States Department of the Interior

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Wildlife Management Office
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Jackson, Mississippi 39213

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January 18, 1995

Dr. Randy Davidson
Assistant Professor
Southeastern Cooperative Wildlife Disease Study
Parasitology
College of Veterinary Medicine
The University of Georgia
Athens, Georgia 30602

Dear Randy,

I would like to schedule deer health checks for late summer at St. Catherine Creek National Wildlife Refuge and at Bayou Cocodrie NWR. Both refuges are relatively close to each other. In fact you can almost see one from the other, although they are probably 30 minutes driving time apart.

St. Catherine Creek NWR had a health check approximately 3 years ago and is in the process of adding another 10,000 acre unit called Sibley Farms. Bayou Cocodrie is located northwest of Vidalia, Louisiana, and southwest of Ferriday, Louisiana. It is a new refuge of approximately 10,000 acres.

I don't think either collection will be much of a problem, although if it's wet there may be more of an access problem. All deer collected can be brought to Sibley Farms and processed, since they have a cooler and a skinning shed with tables. The remains can be easily disposed of at that location also. Coordination for the use of this facility as well as lodging at the Sibley Farms Lodge should be arranged through either Refuge Manager Tom Prusa or me. Mr. Norman Haigh, one of the owners, is usually pretty generous with assistance of this nature and is also genuinely interested in wildlife management.

Health check coordination can be arranged with Refuge Manager Jerome Ford at 318-992-5261 and Tom Prusa at 601-442-6696. Your assistance is appreciated.

Sincerely,

Ray

S. Ray Aycock
Supv. Wildlife Mgmt. Biologist

cc: Prusa
Ford
Bowers
Burnett

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JAN 19 1995
ST. CATHERINE CREEK
NATIONAL WILDLIFE REFUGE